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SPECIFICATION FOR
TOTALIZING WEIGHING MACHINES

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SPECIFICATION FOR TOTALIZING WEIGHING MACHINES

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Indian Standard

SPECIFICATION FOR TOTALIZING WEIGHING MACHINES

0. FOREWORD

0.1 This Indian Standard was adopted by the Indian Standards Institution on 9 February 1967, after the draft finalized by the Commercial Weights and Measures Sectional Committee had been approved by the Mechanical Engineering Division Council.

0.2 This standard is one of a series of Indian Standards on commercial weighing instruments being prepared at the instance of Standing Metric Committee (now the Directorate of Weights and Measures), Government of India.

0.3 In determining the maximum limits of error for totalizing weighing machines, due consideration has been given to the views of manufacturers and testing organizations, prevalent rules and regulations pertaining to weights and measures in India and the practices prevalent in other metric countries.

0.4 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test, shall be rounded off in accordance with IS : 2-1960*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1. SCOPE

1.1 This standard covers the requirements for totalizing weighing machines.

2. TERMINOLOGY

2.0 For the purpose of this standard, the following definitions shall apply.

2.1 Totalizing Hopper Weighing Machine — A totalizing weighing machine in which the load is divided into a succession of discrete equal or unequal individual loads, which are weighed in a hopper, grab or other receptacle.

2.2 Continuous Belt Conveyor Weighing Machine — A totalizing weighing machine in which the load is carried on an endless flexible belt supported by a roller or rollers attached to the weighing mechanism.

*Rules for rounding off numerical values (*revised*).

3. GENERAL REQUIREMENTS

3.1 Removable Parts — Every readily removable part of a machine, the removal of which would affect the correctness of the machine shall be so made and fitted that it is securely located in its operating position. A part shall be deemed to be readily removable if it is possible to remove it without the use of a tool.

3.2 Adjusting Mechanism — Any adjustable part or mechanism shall be secured or protected so that it shall not be altered without the use of a tool or accidentally put out of order during normal working.

3.3 Manual Controls — All manual controls, the operation of which might affect premature discharge, shall be inoperable whilst the weighing machine is in operation.

3.4 Minimum Weight Increment — The minimum weight increment of the totalizing register or indicator shall not exceed:

- a) For totalizing hopper weighing machine $1/25$ of maximum load
- b) For continuous belt conveyor weighing machine $\frac{\text{Maximum rate of weighing in tonnes per hour}}{10\,000}$

4. TEST FOR ACCURACY

4.1 The accuracy of the totalizing register or indicator shall be tested as follows and shall be within the limits specified under **4.2**:

- a) *For Totalizing Hopper Weighing Machines* — A total test load equal to not less than forty times the maximum load for which it is designed shall be reweighed on another instrument (the accuracy of which has been previously verified by the inspector). The total test load shall be built up from individual loads varying from the minimum load marked on the machine to the maximum. Where the foregoing test is not practicable, the machine shall be tested by the application of standard weights.
- b) *For a Continuous Belt Conveyor Weighing Machine* — A total test load equal to not less than 500 times the minimum weight increment of a totalizing register or indicator shall be reweighed over another instrument (the accuracy of which has been previously verified by the inspector). If the machine is capable of operating at various speeds of operation it shall be tested at the maximum reasonable speed and at the minimum.

4.2 Limits of Errors — The error in excess or in deficiency shall not exceed 0.5 percent of the total test load passed over the machine.

5. MARKING AND IDENTIFICATION OF PARTS

5.1 Rate of Weighing — Every totalizing weighing machine shall be clearly marked with the maximum and minimum rates of weighing for which it is designed, and with the maximum weight per weighing cycle or maximum instantaneous load it is designed to carry. The marking shall be in letters and figures of uniform size of a minimum height of approximately 5 mm.

5.2 Removable Parts — Every readily removable part, the removal of which would affect the correctness of machine shall be numbered or otherwise identified with the machine to which it belongs.

5.3 Loose Counterpoises — Loose counterpoises, when used for counter balancing, shall be clearly and indelibly marked together with their equivalent weights and shall be numbered to identify with the machine to which they belong.

INTERNATIONAL SYSTEM OF UNITS (SI UNITS)

Base Units

Quantity	Unit	Symbol
Length	metre	m
Mass	kilogram	kg
Time	second	s
Electric current	ampere	A
Thermodynamic temperature	kelvin	K
Luminous intensity	candela	cd
Amount of substance	mole	mol

Supplementary Units

Quantity	Unit	Symbol
Plane angle	radian	rad
Solid angle	steradian	sr

Derived Units

Quantity	Unit	Symbol	Conversion
Force	newton	N	1 N = 1 kg.m/s ²
Energy	joule	J	1 J = 1 N.m
Power	watt	W	1 W = 1 J/s
Flux	weber	Wb	1 Wb = 1 V.s
Flux density	tesla	T	1 T = 1 Wb/m ²
Frequency	hertz	Hz	1 Hz = 1 c/s (s ⁻¹)
Electric conductance	siemens	S	1 S = 1 A/V
Pressure, stress	pascal	Pa	1 Pa = 1 N/m ²

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